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CORNISH MINING-DOLCOATH MINE-No. I.

CORNISH MINING—DOLCOATH MINE—No. I.

History of the Mine.—When mining operations first commenced at Dolcoath no one can say; and they would appear to date, to use a common phrase, from time immemorial. The mine is indeed one of the most sucient known. Its name seems old enough to have been current from the days of the Pheenician traffic; but the mine can hardly have been of much importance before the commencement of the last century. After that period, however, its resources must have been developed with great rapidity, for Dr. Borlase includes Dolcoath in a list of inines which he enumerates as having turned out the greatest profit between the years 1718 and 1758. It is considered that what may be called the present working has been carried on for some 100 years, during which ores to the unprecedented value of 5,500,000! have been raised, an amount of produce averaging over 1000!, a week throughout the continuance of the operations. These figures are exclusive of the former returns, of which no accounts are extant. From about 1778 to 1799 the working was discontinued; but since unprecedented value of 5,500,000l. have been raised, an amount of produce averaging over 1000l. a-week throughout the continuance of the operations. These figures are exclusive of the former returns, of which no accounts are extant. From about 1778 to 1799 the working was discontinued; but since the latter year, in which the existing company was formed, there has been no cessation of operations up to the present time, nor does the remotest likelihood now appear that any will take place, the prospects of the mine nover being more favourable. In 1778 a depth of 185 fathoms from the surface (or 150 from the adit level, from which at Dolcoath and many other mines the depth is calculated) had been reached; and from the resumption of operations until 1836 the workings were carried further downwards 55 fathoms, to the 210 level. In the intrim the mine was wrought for copper, and that most successfully, the ores from Dolcoath in 1815 producing the largest amount of money of any adventure in Cornwall—64,399l. Indeed, at one time the returns were 13,000l., 14,000l., and 15,000l. per month, and the profits 6000l. to 7000l. It may seem strange that a concern which fifty years ago was the most profitable copper mine in Cornwall should now be the most extensive tin mine; but the circumstances under which this transformation was developed are yet stranger. As the workings were carried downward to the 210 fathom level the mine gradually became less producitive in copper, and the appearances in the bottom unfavourable for that metal. The result was that in 1836 the water was allowed to rise to the limit of the former operations. The other parts of the mine still produced copper; but in 1838 to the extent of 14,000l. only. The abandonment of the concern may be considered to have been immenci, had not Captain Charles Thomas, then one of the under-ground agents, the present manager of Dolcoath, and a gentleman well known and of high reputation in the mining districts of Cornwall and Devon, suggested that the mine should be worked

havebeen of somewhat frequent occurrence in the stream works—more so in former years than now.

Description of the Mine.—The Dolcoath sett lies nearly equidistant between Camborne and Pool. It is nearly two-thirds of a mile in breadth and length, and is the property of Mr. John Francis Basset, of Tehidy, the representative of the late Lord de Dunstanville, who, in addition to receiving about 3000l. a year in dues from the mine, is one of its largest shareholders. As may well be imagined from the antiquity of the concern the workings are of the most extensive character. It is considered that there are no less than fifty miles of subterranean galleries. The lowest level is 278 fathoms below the adit, which in some places is 36 fathoms beneath the surface, though it is commonly reckoned to be 30. Thedeepest shaft—that known as the engine-shaft, or new sump—is being sunk yet further, and has reached about 4 fathoms below the 278 fathom level. From this it would appear that the extreme depth of the mine is 314

shaft—that known as the engine-shaft, or new sump—is being sunk yet further, and has reached about 4 fathoms below the 278 fathom level. From this it would appear that the extreme depth of the mine is 314 fathoms, or 1904 feet—over a third of a mile! Dolcoath is thus one of the deepeat mines in England. As may be expected, such an extensive undertaking has many shafts: the principal are—Wheal Killas, Wheal Bryant, Harriett's, Old Sump, Engine, New East, Valley, Old Dolcoath, Dunkin's, Garden, Bennett's, and Gossan. The four inst named are not now in use. Of the others four are the principal drawing shafts; the two pumping engines are at Harriett's and Engine shaft; and the man-engine is at Wheal Bryant. The chief lodes worked upon are the Main, Caunter, Harriett's, South Entral, and North Entral. The main lode passes through the Carn Brea, Tincroft, Cook's Kitchen, West Stray Park, and Camborne Vean setts. It was found in Dolcoath to be rich in copper; from the adit to the 160; from that point to the 200 it contained a mixture of tin and copper; but below the latter level it has yielded tin only.

Altogether thirteen lodes and branches have been worked upon more or less extensively; though the main lode has probably produced as much or rea sa il the others put together that the richest parts of the lodes are commonly east and south of west (magnetic); but the richest parts of the lodes are commonly east and west. The majority of them have produced principally copper; but they have not been worked extensively to the same depth as the main lode. It is anticipated that they would also be found to contain in. In 1863, 1023 tons 8 cwt. 1 qr. 8 lbs. of black tin were sold, but of copper scarcely 3000. The total returns for the year were 70,679. 128. 5d., and the cost 63,221/L is. 7d., the profit thus being 17,458. 10s. 18d. The cost had been materially affected by the low price of tin, which is now 20. per ton less than it once was. Otherwise the profit would have been much greater. The ground at Dolcoath is so hard

of enterprise, as not only not to want interest, but to possess an attractiveness possessing to wm.

At Dolcoath there is a man-engine, by which the men descend to, and ascend from —with the smallest possible amount of exertion—the 190 fathom level, or about 220 fathoms from the surface. This engine may be explained to consist of a series of wooden beams, bolted to each other longitudinally, and extending to the bottom of the shaft. A team-engine moves the compound beam—which works in ways—with its series of standing places, aiternately up and down, the distance from one step of the the shaft. A steam-engine moves the compound beam—which works in ways—with its series of standing places, aiternately up and down, the distance from one sheel from the content of the shaft. A steam engine moves the compound beam—which go do down places himself on the topmost step of the engine, and is carried down to a level with the first platform in the shaft. He steps from the engine on to this. The beam again ascenda, and its second step is brought up to the spot where he is standing. Upon the second step he now places himself, and, by the return action of the machine, is carried down to the next platform, two fathoms below his last stopping place, and four from the top. and its second step is brought up to the spot where he is standing. Upon the second step he now places himself, and, by the return action of the machine, is carried down to the next platform, two fathoms below his last stopping place, and four from the top. By repeating the process, alternately stepping on and off the engine, he gets to the bottom, with no more trouble than the necessity of watching the proper moment to pass from the fixed to the moveable platform, and vice versa. There are 110 steps to the engine, which is capable of carrying 108 men up or down-at one and the same time. Those who are going up keep to one side of the shaft, those going down to the other; one party stepping on at the moment the others step off. There are two bobs underground to balance the weight of the engine, which makes, on the average, 3½ strokes a minute carrying the men up or down in 25 minutes or half an hour. Some of the miners, however, ascend with much greater speed, ranning up the ladders in the shaft to the next stage, and catching a higher step of the engine there, instead of waiting for the descent of that which was immediately above them. The man-engine is one of the greatest boons to the working miner that has ever been devised; none but those who have tried can tell how severe is the physical exertion of climbing several hundred feet of almost perpendicular isoders. In fact, but for the engine it would be almost impossible to work the lower levels of such a mine as Dolecath. Between the termination of the man engine and the deepest level there are still, however, 88 fathoms (528 feet) of ladders, and it is intended to carry the engine down further, in order to relieve the men as far as possible. Man-engines were introduced first, not many years ago, at Treaven; and the one at Dolecath was relieved from her somewhat perilous position by the tearing of her dress. Dolecath exhibits the phenomena of hot and cold springs. It one of the lowest levels and not without danger. A portion of her apparel caught in the ways,

on the "darkness visible" like stars, fathoms above or below the spectator, as he stands in a central level opening into such a cavern, and peers into what, for all he can see to the contrary, may be illimitable space. Though sight may fall him, hearing, however, does not, and the rapid strokes of hammers, the sound of voies, or the singing of hymns, and even and anon the rumbling of the blasting—the concussion, perhaps, shaking the rick on which he stands—all help him to appreciate the extent and energy with which the underground operations are carried on. The miners at Dolcoath seem to be very fond of sacred music; and the writer, in ascending by the man-cogine, after a few hours sejourn below, met a large number of them going to their eight hours labour, singing as they went. Every circumstance combined to render the effect at once weird and exciting. Perhaps one of the strangest sights to be viewed in a mine is to be seen when a number of men are climbing up a long ladder against the side of the "gumls," or worked out cavity. At a distance the lighted candies stock in their hats alone are visible, and the curious spectacle is presented of a number of lights ascending in undulations, apparently self-moved and without support. A natural cavera or hothow place of any size is termed by miners a "wash." It is from such spots that the finest spectures of the start of the star

[To be continued in next week's Journal.]

SALES OF COPPER ORES.

COPPER ORES SOLD AT THE CORNWALL WICKETINGS FOR THE QUARTER ENDING DECEMBER 31, 1864.

		ons.		Amou \$30,253	nt.	0
	Clifford Amaigamated 4	149 .		20,963 14,798	18	0
	West Seton 1	431 .		7,664	2	6
	East Caradon 1	487 .		6,134	4	6
	Wheal Seton	290 .	*****		19	0
9		770 .			14	6
	Phoenix 1	183 .		3,651	17	0
	Prosper United	964 .		3,352	1	6
	Carn Brea	570 . 667 .	*****		13 19	6 0
	W Heat Daneet	402 .		3,013 2,928	3	6
	Craddock Moor	475 .		2,881	4	6
	South Tolgus	502 .		2,513	14	0
		570 . 325 .		2,458	6	6
		218		2,285 2,153	9	6
	Par Consols	365 .		1,973	9	6 6
	Wheal Margery	429			17	0
	Bampfyide	127 .		1,667	17	6
	Great Wheal Busy			1,629	13	0
	West Tolgus	224		1,479	8	0
	East Rosewarne	163		1,436	12 16	0
	Okel Tor	480		1,393	12	0
	North Roskear			1,812	16	6
	Rosewarne United Great South Tolgus New Wheal Martha.	166		1,163 1,145	9	6
	Levant	210		1,135 1,099	3	0
	Boscawen	295		1,083	14	6
	Tywarnhaile	333	•••••	1,062 1,009	0	0
	Dolcoath			1,003	1	86000006600660066600006660
	Brook wood	297		949	13	6
		247		893 870	9	6
	Kelly Bray. West Fowey Consols Cargoli	121		851	17	0
	Treloweth	60 160		783 775	6	0
	East Russell			726 676	13 15	0
	Wheai Crebor East Grenville	124		660 653		6
	Tineroft	161		639	5	Ö
	South Dolcoath	172		575	8	6
	North Robert Crane	99 56		534 528	16	6
	East Basset			521 469	11	0000660006600006600000
	North Downs New Rosewarne	69		462	6	0
,	Wheal Polmear			452 443	15	6
	North Crofty	95 172	******	430 421	0	0
	Furadon	70 103		404 398	6	0
	New Treleigh	136		377 369	5	0
	New Treleigh Tolvadden Wheal Grenville North Grambler	35	******	361 324	7	6
	Condurrow	63	******	318	14	0
	Botallack Wheal Arthur	109	:::::	305 304	18	0
	South Bedford	90 89		294 271		0
	Lady Bertha	106		269	11	6
	Yarner	54		248	11	0
	South Carn Brea South Condurrow	20		237	10	
	New Cornish	87		237		6
	Wheel Ruller			225	11	6
	Grambler and St. Aubyn	30		212	17	0
	West Stray Park Grambler and St. Aubyn Wheal Trannack Molland	42		202	10	0
	Hawkmoor	45 36		189 174		0
	Wheai Uny North Basset East Forence South Crimis	36 40		161		0
	East Florence	38		142	19	
	Tresavean	50		140	0	0
	Wheal Anna	37 16	******	126	8	0
	Providence East Downs Falmouth and Sperries	24		125		
	Wheal Vywan	26		118	1	0
	Champion's Ore	23 9		115	5	0
	Wheel Cartle	32		108	16	0
	East Treakerby	10		91	15	
	Great Tregune	7		65	12	6
	Wheat Catalogue Wheal Unity Consols Great Tregune East Wheal Ellen West Alfred Consols North Frances	56		61	12	0
	West Trevelyan			58	5	6
	West Trevelyan Emily Henrictta Alfred Consols Grent Wheal Alfred Higgin's Ore	10		47	15	0
	Great Wheal Aifred	13		- 42	12	. 0
	Camborne vean	13		28	18	6
	Creegbrawse	2		18	12	0
	Crowan Consols	7	******	. 10	13	0
	Opie's Ore	10		11		0
	Tilogan Mines Camborne Consols	5			10	0
	Pembroke				5 (
	COMPANIES BY WHOM THE ORES	WEB	E PUI	CHASE	D.	

Fuel.—An invention has been provisionally specified by Mr. John Milnes, of Gloucester, which consists in taking peat and mixing it with culm, slack, small coal, coal brash, or refuse of coal, which he prefers to be mixed in equal portions, and the same may, if required, be squeezed or pressed into compact masses or blocks, and will then be fit for use as fuel, and be much improved in quality. He can also mix peat with coal brash, and the earthy substance found with it, or with clay.

SALES OF COPPER ORES.

COPPER ORES SOLD AT THE SWANSEA TICKETINGS FOR THE QUARTER

	ENDING DECEMBER 8	1, 18	54.			11	-
1		Tons.		Amo			
	Berchaven	1740		£15,423			
	Regulus	87	******	1,594	7	6	
	Councres	181	******	965		4	*
	Ballycummiak	83	******	837		0	
	Cappagh	50		408		-	
	Copper Slag	118	*****			0	
	Precipitate	3	*****	367	2	6	
	Cobbing	18	*****	147	0	0	
	Cronebane	40	*****	108		0	
	London Ore	5	*****	77		0	
	Irish		*****	- 58		6	
	Tigrony	11	*****	29		0	
	Brand		***	23	15	6	4
	Total	0000				_	
	Total	2339		£20,042	- 7	0	
	COLONIAL						
	Cape Copper	867		£23,604	18	6	
	Kanmantoo	29		1,197	2	6	
	Concordía	63		1,152		0	
	New Cornwall	44		751	6	ŏ	
	Gwalla	8	******	134	0	ŏ	
	-Australian	2	******	52	3	ŏ	
	Newfoundland	2	******	27		0	
	***************************************		*****		11	U	
	Total	1015		£26,919	1.0	0	
		1010		20,919	14	o	
	FOREIGN.						
	Cobre	1167	*****	£14,642	13	0	
	Chili Ore and Regulus	545	*****	10,249	11	6	
	Cuba	527	*****	7,870		6	
	Cuba Dust	109	*****	1,299	16	6	
	Leghorn	113	*****	824		0	
	Spanish	125	******	712	4	ŏ	
	Victor Emmanuel	108	******			ŏ	
	Var	31	******	513		6	
	Casali	41		387	9	ő	
	Piedmontese	13	******	97	3		
	- realmountage + + + + + + + + + + + + + + + + + + +	40	*****	91		6	
	Total	2779		697 604		_	
				£37,224	11	6	
	RECAPITULATION						
	British	2239		£20,042	7	0	
	Colonial	1015		26,919	17	0	
	Foreign	2779		37,224	11	6	
	Regulus, Sludge, and Sundries	52				6	
						_	
	Total	6185		£85,167	0	0	
	COMPANIES BY WHOM THE ORES	wun	W WYTE	CITYAGE			
	Copper Miners Company	498	*****	£ 6,219	18	8	
	Freeman and Co	437	*****	7,173	17	0	
	Grenfell and Sons	939		12,801	19	0	
	Sims, Willyams, and Co	435		9,171	15		
	Vivian and Sons	1049				6	
	Williams, Forter, and Co	1169				11	
	Mason and Elkington	368				î	
	Bankart and Sons	622				ê	
	Charles Lambert	5				ő	
	Sweetland, Tuttle, and Co	357				10	
	Penciawdd Copper Company	118					
	Mona Copper Company	188				6	
	and copper company	100	*****	2,260	5	0	
	Total	6195		COX 105	-	-	
	10141	0180	,	£85,167	0	0	
			_				

THE CLEVELAND IRON TRADE-ANNUAL REPORT.

THE CLEVELAND IRON TRADE—ANNUAL REPORT.

In presenting our second annual report of the Cleveland Iron Trade, we would remark at the outset that our figures and observations on the trade of the year just closed must necessarily be of a less favourable character than they were a year ago. The iron trade is at this moment passing through a severe and trying ordeal—the natural result of overtrading and prolonged monetary pressure. There can, however, but be one opinion entertained as to the absolute genuleness of the iron trade of this district, and its ability to compete successfully with any other iron-making district in this country; but although so distinguished, still it is necessarily subject to fluctuations, and liable to the evils consequent on the undue expansion of trade and a disturbed currency.

The year 1864 opened with stocks a little over 20,000 tons, and prices at their maximum; No. I standing at 64s., the higher numbers being proportionately less. No change of any importance occurred till the middle of February, when a reduction of 2s. per ton was officially notified by the ironmasters—and then not until Scotch warrants and failen 10s. per ton. Subsequently prices fell more rapidly, and before the end of July No. I had declined to 56s. nominally, but really to 58s., at which orders were freely taken, underselling being then a prominent feature of the trade. The establishment of a daily Exchange at Middlesbrough, and the introduction of the Scotch system of warrants, opportunely interposed, and no further reduction at that time took piace—indeed, so salutary was the operation of the warrant system, that an immediate advance of 2s, per ton was the result, and the benefit thus begun might have continued had not the rate of discount advanced from 7 per cent., to 8 per cent., which it id did no Aug. 4, the announcement of which caused the market to open flat and prices to fall. On Sept. 8 another 1 per cent. was added to the Bank mirimom, the effect of which was to prostrate speculation cord of which ca

dear money, but only at prices favourable to the buyers, and generally for immediate delivery. Money is now comparatively cheap, and unless some favourable and unforeseen contingency arises to determine otherwise, we may confidently look for higher prices than at present rule.

The following may be considered the present average price of makers' fron:—No. 1, 50s. per ton; No. 3, 48s.; No. 4, 46s.; and mottled and white, 45s. per ton under makers' quotations. Stocks this year are larger than usual; 38,500 tons being in store, and 25,000 tons in makers' hands. The production of pig-iron in 1864 has not exceeded the make of 1863 to the extent predicted, in consequence of the delay in completing the furnaces in course of erection at the beginning of the year, but it may safely be computed at 904,000 tons. Eight new furnaces only have been blown in, three undergoing repairs have been re-lighted, and one has been blown out. There are 33 and 21 furnaces in and out of blast respectively, and 33 new ones building.

The mineral wealth of the district must some day feel the annual drain upon its resources. The duration and probable value of the raw material may be estimated, if we consider the annual consumption of mineral for the purpose of pig-iron making alone. To make 904,000 tons of pig-iron no less than 1,286,350 tons of coke, 2,946,500 tons of ironstone, and 661,800 tons of limestone were used in its conversion.

The demand for manufactured iron was good at the beginning of the year, but, owing to the stagmant state of the iron shipbuilding trade, and from other causes, it has greatly diminished, and prices consequently are low, and barely remunerative. The labour question has assumed a very grave aspect, and unless the workmen consent to a reasonable reduction in their wages, the manufacturers must in self-defence bring their works to a stand. The value of labour must rise and fall with the price of the manufactured from musk be reduced in a like ratio. It is impossible prices can be maintained at the present scal

1	FURNACES IN AND OU	T OF BLAST A	ND BUII	DING.		
1	Proprietors. Nam	ne of Works, Fr	arnaces.	In. On	t. Buildir	næ
1	Albert Iron Company H	inderwell			1	
1	Armstrong, Sir W. and Co El	swiek				
1	Bolckow, Vaughan, and Co., Limited Ci	leveland	9			
1	" " M	iddlesbrough				
1	, , , w	ltton Park	4			
1	Bell Brothers Cl	arence	. 6			
1		ylam				
1	" F			2		_
1	Bell, Hawks, and Co W			1		_
-1	Birtley Iron Company B	irtley	. 3	2	1	_
-1	Bagnail and Son G			2		_
١	Bastow and Co Ci					2
- 1	Cochrane and Co O					
1		iny Lane		6		_
1	Consett Iron Company, Limited Co			8	10	_
1		ees		5		2
1	Holdsworth, Benington, and Co St	tockton	. 3			
-1		ees Side				
-	Hopkins, Lloyd, and Co					
-	Jones, Dunning, and Co N				1	
-1	Jarrow Iron Company Ja				1	
1		Vallsend				
1		Valker			3	
-		eaham				
1	Rosedale & Ferry Hill Iron Company F					
-	Middleton Iron Company F					
-		outhbank				
	South Durham Iron Company D					
	Samuelson, B. and Co N Stevenson, Jaques, and Co A					
		argo Fiest				
		Vashington				
	Weardale Iron Company, Limited T					
		tanhope			1	
	Warners, Lucas, and Barrett N					
	Whitweli and Co T	hornahy	. 3			
	Tyne Iron Company I					
	The rion comband	somming esses				
1	Total		114	93	21	33
	10tm	T)	CORERT ST			

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